Scale-Up: EiE

Overview: Engineering is Elementary is a research-based, standards-driven, and classroom-tested curriculum that integrates engineering and technology concepts and skills with elementary science topics.

Program Summary

Children are born engineers—they are fascinated with building, with taking things apart, and with how things work. However, K-12 educational settings have traditionally done little to develop children's engineering and technological literacy.

EiE is the nation's leading engineering curriculum for grades 1 -5. This fun, flexible, inquiry-based curriculum gives you everything you need to integrate engineering with the science subjects you already teach. Engineering calls for children to apply what they know about science and math. Their learning is enhanced as a result. And because engineering activities are based on real-world technologies and problems, they help children see how disciplines like math and science are relevant to their lives.

The Engineering is Elementary (EiE) project fosters engineering and technological literacy among elementary school students. EiE has created a research-based, standards-driven, and classroom-tested curriculum that integrates engineering and technology concepts and skills with elementary science topics. EiE also connect with literacy and social studies.
Research shows that when engineering is part of elementary instruction, students become more aware of engineering, science, and technical careers. This finding is important at a time when the number of American college students pursuing engineering education is decreasing. Early introduction to engineering can encourage many capable students—but especially girls and minorities—to consider engineering as a career and take the necessary science and math courses in high school. What's more, engineering activities often require students to work in teams, where they build the collaboration and communication skills critical for career success in any field.

Grant Wood Area Education Agency will partner with the Museum of Science, Boston in providing professional development. To date, EiE has reached over 2.7 million students and 32,000 teachers and is presently used in all fifty states. EiE units are designed to engage students in the engineering design process and include:
- Storybooks featuring child characters from a variety of cultures and backgrounds, who introduce students to an engineering problem. Students are then challenged to solve a problem similar to that faced by the main character.
- Lesson plans for teachers. EiE teacher guides include vocabulary, learning objectives, tie-in science content, detailed materials and preparation sections, and step-by-step instructions on how to facilitate each EiE activity.
- Materials set appropriate materials to support the embedded investigations.

Project Description/Objectives

- Goal 1. Reach children who are underserved or underrepresented in STEM fields.
- Goal 2. Increase children's technological literacy.
- Goal 3. Increase elementary educators' ability to teach engineering and technology.
- Goal 4. Increase the number of schools in Iowa that include engineering at the elementary level.

Grade Levels: 1-6

What is Provided by the Project

Engineering is a new discipline for elementary school teachers. To learn more about engineering and technology content and pedagogy, the EiE project offers professional development workshops for elementary school teachers.
- Professional Development. - New EiE IA STEM grant teachers will attend a full day of professional development; returning EiE IA STEM grant teachers will attend a half-day webinar.
- Stipends, sub reimbursement and travel to attend professional development will be provided.
- Funded classrooms will receive funds for at least one EiE curriculum and materials set.

What is Required by the School or Local Education Agency (LEA) in Order to Implement This Program:
- Districts will provide professional release time for classroom teachers to attend a one-day PD
- Sub pay and related expenses will be reimbursed through the service provider,
- Districts will use EiE unit(s) in conjunction with (or soon after) a corresponding science unit is completed.
Each EiE unit takes 6-8 hours of instructional time to complete. Teachers are expected to teach the entire unit and to complete an evaluation of the EiE implementation.

Website to View Program and Standards Alignment: http://www.eie.org/sites/default/files/eielinked_ia_final_0.pdf; Link to the NGSS http://www.eie.org/sites/default/files/eie_mapped_to_ngss_2013.pdf
Program Video: http://vimeo.com/31808766